June 28, 1938. A. F. P. STENZY 2,122,330

TORQUE AND SPEED INCREASING GEARING

Filed May 20, 1937 2 Sheets-Sheet 1

Fig. 3

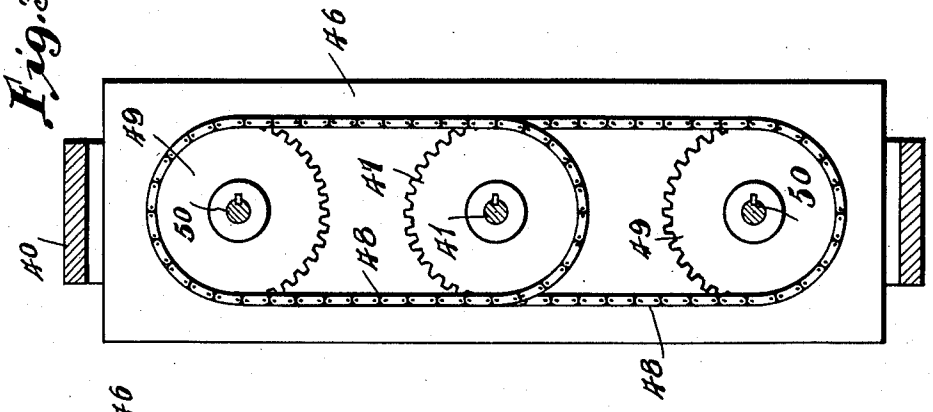


Fig. 2.

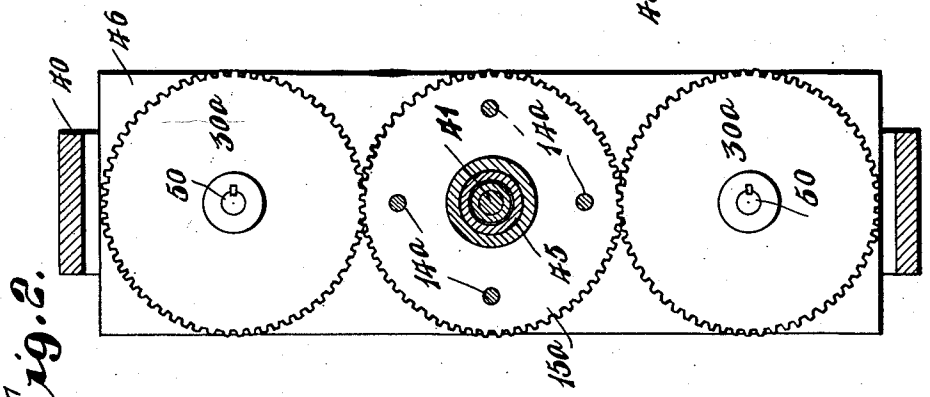
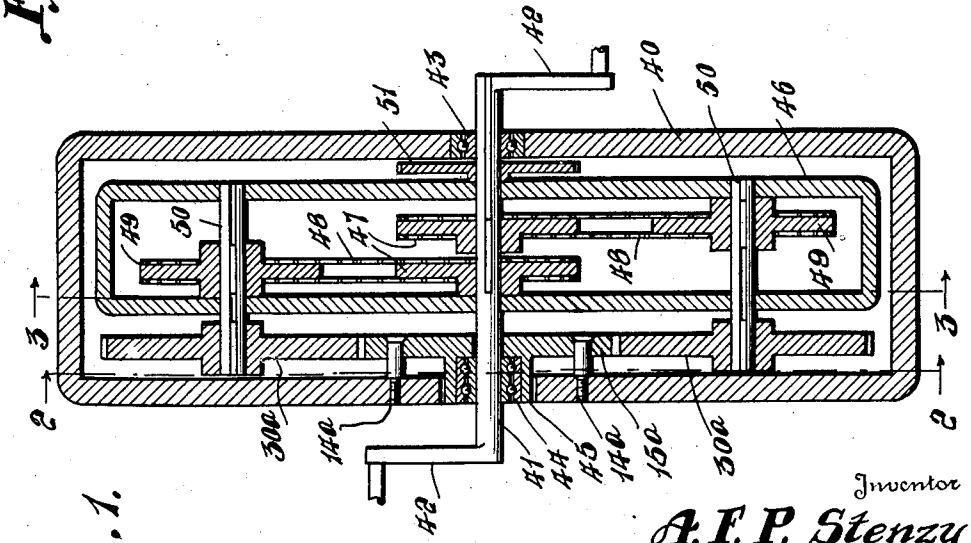


Fig. 1.



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June 28, 1938. A. F. P. STENZY 2,122,330

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Filed May 20, 1937 2 Sheets-Sheet 2

Fig. 6.

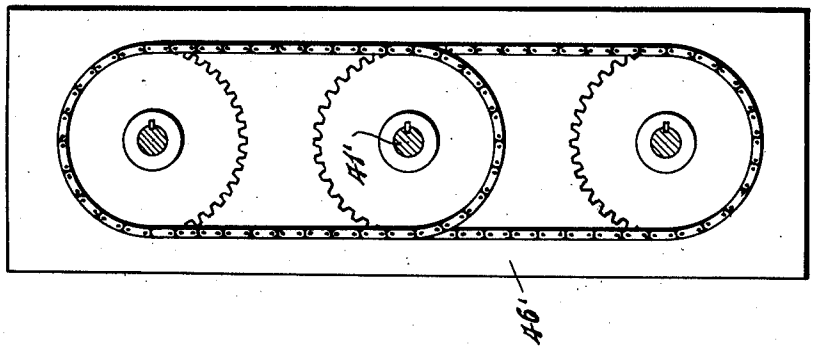


Fig. 5.

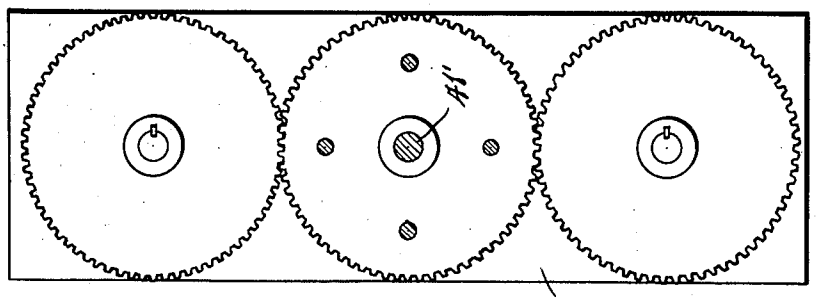
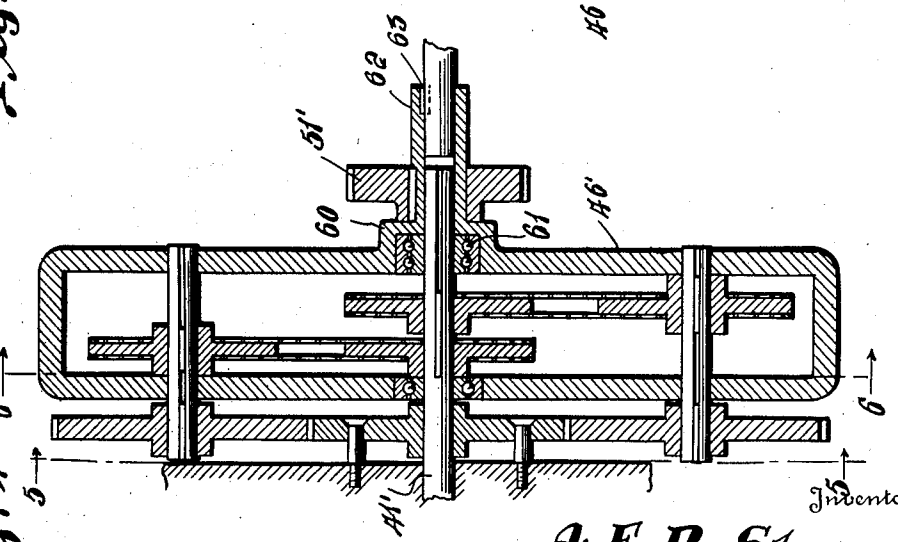


Fig. 4



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UNITED STATES PATENT OFFICE

2,122,330

TORQUE AND SPEED INCREASING GEARING

August F. P. Stenzy, Baltimore, Md., assignor of thirty percent to Stephen Ratajczak, Baltimore, Md.

Application May 20, 1937, Serial No. 143,788

4 Claims. (Cl. 74—306)

The present invention relates to gearing and is a continuation in part of the subject matter of my application for Letters Patent for Torque and speed increasing gearing, Serial No. 102,393, filed by me on September 24, 1936.

The present form of the invention provides a novel combination and organization respecting an increase over normal in the torque and speed of the driven shaft relative to the drive shaft.

Various additional objects and advantages will become apparent from a consideration of the description following taken in connection with accompanying drawings illustrating an operative embodiment.

In said drawings:—

Figure 1 is a vertical sectional view through the invention;

Figure 2 is a sectional view taken on the line 2—2 of Figure 1;

Figure 3 is a sectional view taken on the line 3—3 of Figure 1;

Figure 4 is a vertical sectional view through a modification of the invention;

Figure 5 is a vertical sectional view taken on the line 5—5 of Figure 4; and

Figure 6 is a vertical sectional view taken on the line 6—6 of Figure 4.

In the said drawings, like reference characters designate like or similar parts.

The invention comprises a frame or casing at 40 in which a shaft 41 is journaled, having two pedals and cranks as at 42, to enable operation by foot power in the manner of a bicycle, although the shaft 41 may be operated in any desired manner, that referred to, being by way of example only.

Such shaft is journaled in bearings 43 and 44 carried by the casing 40, the latter bearings being within a hub 45 of a stationary gear 15^a bolted or otherwise rigidly fastened at 14^a to the casing 40. Such stationary gear 15^a is of the same size as gears 30^a enmeshed therewith.

A frame 46 is journaled or loose on the shaft 41 and within the frame, sprocket wheels 47 are rigidly keyed to the shaft 41. Similar sprocket chains 48 are trained over the sprocket wheels 47 and over sprocket wheels 49. Sprocket wheels 49 are keyed to short shafts 50 which are journaled in the frame 46, and also have the gear wheels 30^a keyed thereto.

It will be realized that as the shaft 41 is operated by foot power or otherwise, the sprockets 47 will drive the chains 48, sprockets 49, shafts 50 and gears 30^a, causing the frame 46 to operate with increased torque or increased speed, the power being taken in any suitable manner, for instance from a pulley 51, attached to frame 46, and over which a belt or the like may be connected.

In further explanation, the said frame or casing 40 may be the outer frame of any structure to which the rotating frame drive is attached, the same rotating frame 46, shaft 42, sprocket wheels 47, etc.

Said sprocket wheels 47 are fastened to their shaft 41 by keys or otherwise, and they act as pressure or pulling wheels, delivering the said pressure or pull by sprocket chains to lever wheels 49. The fulcrum of wheels 49 is the axes of shafts 50. The wheels 49 transmit pressure to wheels 30^a which rotate around wheel 15^a, pulling frame 46 around by a lever action. The sprocket wheel 51 rotates with the frame 46 on shaft 41. Shaft 41 is journaled in bearings 43 and 44 on frame 40 and is also journaled in wheels 51 and 15^a. A chain traversing wheel 51 may lead to any device to be driven.

Many modifications may be resorted to particularly with respect to the substitution of equivalents such as gears for pulleys or vice versa, or the employment of sprocket wheels, sprocket chains, gear wheels, secondary drives, other gear wheels or the like, especially for the power take-off. By way of example, reference is to be had to the form of Figures 4, 5, and 6. In this modification, frame 46′ corresponds to the frame 46 and it has an enlarged hub at 60 housing the ball bearing device 61. From the hub, a sleeve 62 extends outwardly on which a power take-off member 51′ is keyed, such member being for instance a spur gear, a pulley, sprocket wheel or any equivalent. The sectional shaft 41′ corresponds to that at 41 and one section is keyed in the sleeve 62 as at 63. Aside from the modifications described, the structure corresponds to that of the preceding figures and similar reference characters have been applied thereto.

I claim as my invention:—

1. Gearing of the class described comprising a casing, a driving shaft journaled thereon, a frame within the casing journaled on and movable relatively to said shaft, a stationary gear on said casing concentric therewith and journaling said shaft, sprocket wheels on said shaft within the frame, auxiliary shafts journaled in the frame, gear wheels on the auxiliary shafts between the casing and frame enmeshed with the stationary gear wheel, sprocket wheels on the auxiliary shafts within the frame, and chains connecting

the first and second mentioned sprocket wheels, said frame being endless about the sprocket wheels and chains and being of a depth equal to the diameter of the gear wheels, and the casing being endless about the frame and gear wheels.

2. Gearing of the class described comprising a casing, a driving shaft journaled thereon, a frame within the casing journaled on and movable relatively to said shaft, a stationary gear on said casing concentric therewith and journaling said shaft, sprocket wheels on said shaft within the frame, auxiliary shafts journaled in the frame, gear wheels on the auxiliary shafts between the casing and frame enmeshed with the stationary gear wheel, sprocket wheels on the auxiliary shafts within the frame, and chains connecting the first and second mentioned sprocket wheels, a drive take-off member on the frame, and said driving shaft having pedals to facilitate foot operation, said frame being endless about the sprocket wheels and chains and being of a depth equal to the diameter of the gear wheels, and the casing being endless about the frame, said gear wheels and said take-off member.

3. Gearing of the class described comprising a casing, a driving shaft journaled thereon, a frame within the casing journaled on and movable relatively to said shaft, a stationary gear on said casing concentric therewith and journaling said shaft, sprocket wheels on said shaft within the frame, auxiliary shafts journaled in the frame, gear wheels on the auxiliary shafts between the casing and frame enmeshed with the stationary gear wheel, sprocket wheels on the auxiliary shafts within the frame, and chains connecting the first and second mentioned sprocket wheels, a drive take-off member on the frame, said frame being endless about the sprocket wheels and chains and being of a depth equal to the diameter of the gear wheels, the casing being endless about the frame, said gear wheels and said take-off member, and said driving shaft having pedals to facilitate foot operation, and a sleeve extending from said frame concentric with the axis of rotation, and power take-off means carried by said sleeve.

4. Gearing of the class described comprising a casing, a driving shaft journaled thereon, a frame within the casing journaled on and movable relatively to said shaft, a stationary gear on said casing concentric therewith and journaling said shaft, sprocket wheels on said shaft within the frame, auxiliary shafts journaled in the frame, gear wheels on the auxiliary shafts between the casing and frame enmeshed with the stationary gear wheel, sprocket wheels on the auxiliary shafts within the frame, and chains connecting the first and second mentioned sprocket wheels, a drive take-off member on the frame, said frame being endless about the sprocket wheels and chains and being of a depth equal to the diameter of the gear wheels, the casing being endless about the frame, said gear wheels and said take-off member, and said driving shaft having pedals to facilitate foot operation, a sleeve member extending from the frame, and a sprocket wheel for power take-off purposes attached to said sleeve.

AUGUST F. P. STENZY.